Earned Value Management

8th Annual International Cost/Schedule Performance Conference

27-31 October 1996

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Lockheed Executive Commitment

   "The use of earned value management process . . . even where no contractual requirement exists. I intend to expand this practice and to make earned value the basis for management of all our efforts."

   "Our programs must continue to improve their performance management practices and skills and we must intensify efforts to eliminate activities that do not add value to the program management process."

Sam Araki
Lockheed Martin Missiles & Space

EVM Initiative

August, 1995 Sam Araki formed the EVM Task Force with the following objective:

Extend to all enterprise activities a <u>cost effective,</u> earned value system that satisfies <u>minimal requirements</u> consistent with prudent business practice and essential to both the <u>intent of C/SCSC</u> and best <u>commercial practice</u>

OSD Commitment

Unprecedented Support

   "Task Force activities will not prejudice recognition by the Department of Defense of the Lockheed Martin Sunnyvale Performance management System as compliant with Cost/Schedule Control Systems Criteria (C/SCSC)."

   "The commendable initiative shown by Lockheed Martin, Sunnyvale and by DPRO is consistent with the objectives of Acquisition Reform, and provides an opportunity to minimize or eliminate differences between military and commercial management requirements."

Dr. P. G. Kaminski,
Under Secretary of Defense,
(Acquisition and Technology)

EVM Task Force

- **LMMS and DCMC Exec. Mgmt**

Steering Committee

**LMMS Office of the President
DCMC Commander**

- **Business, DCMC, and Program Senior Mgmt**

Exec. Task Force

**Key Program Vice Presidents
Division Directors of Business Ops
DCMC Deputy Commander**

- **Cross Functional Team**

Implementation Team

**Task Force Manager
DCMC C/SCSC Focal Point
Program Reps
Process Reps
Information Systems Reps
Functional Reps**

DCMC's Epectations

- Government and company program manager ownership of EVM

- Standardization of EVM process across the enterprise

- Cost effective and meaningful joint surveillance

- Eliminate non-value-added activities associated with EVM

Perform a Requirement Analysis

Top Down

Criteria

"Guidance"

Company

Folklore

Sound principles
Some clarification and redundancy
White Paper

Rewrite I/P
Expected outcome good
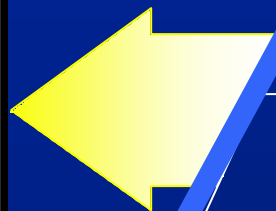
Rewrite for all programs
Integrate with other systems - WEB

Get the message out, retrain!!!

- Professional interpreters developed

- Lack of real "user" involvement

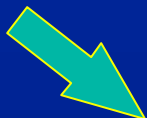- Mistakes generated rules

Identify and remove impediments

Pilot Program

Benchmark - IRIDIUM®

Pilot - Milstar

Best-Demonstrated Practices

Process Change Flow

Program Implementations

EVM Change Status

Process Change Candidates

➡ **EAC Triggers**

➡ **Variance Analysis**

➡ **Work Authorization**

➡ **Baseline Management**

➡ **Consistent OBS/WBS**

➡ **Level of CAM**

➡ **Business Support Role**

➡ **EV Technique**

➡ **Streamlined Material EV**

➡ **Use of Metrics**

➡ **Meetings/Information**

➡ **COTS**

➡ **Surveillance**

➡ **EDI**

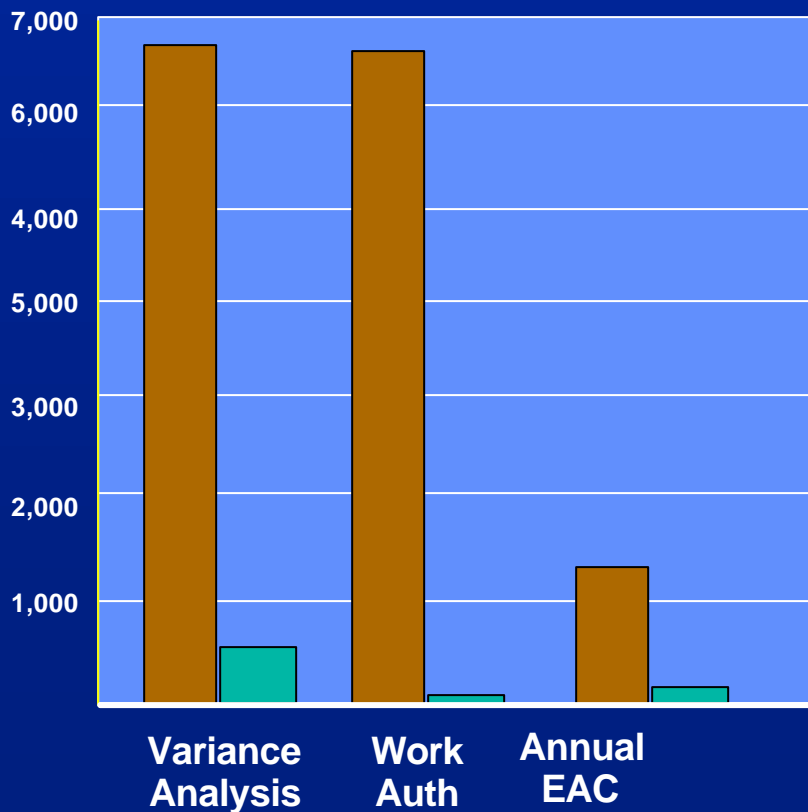*Process changes resulted from commercial benchmarking and best demonstrated practices*

Eliminate Non-Value-Added Activity
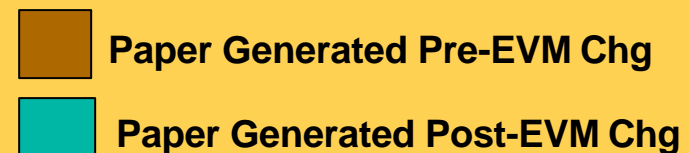
LMMS

Annual estimated unique pieces of paper generated before and after process change for single program

Coopers & Lybrand Study

- **C/SCSC 3rd-highest regulatory cost driver**
- **Two-thirds effort associated with pushing paper**

Legend:
- Paper Generated Pre-EVM Chg
- Paper Generated Post-EVM Chg

Chart y-axis values: 7,000 / 6,000 / 4,000 / 5,000 / 3,000 / 2,000 / 1,000

Chart categories: Variance Analysis, Work Auth, Annual EAC

Use the "Real Info"

LMMS Action

- **Eliminate cost account variance reports**

- **Develop standard status review charts for teams with graphics**

- **Encourage customer participation on IPTs**

CV (100)
SV 75
SPI 1.02
CPI .95

Total Float +15

IPT Status Meeting
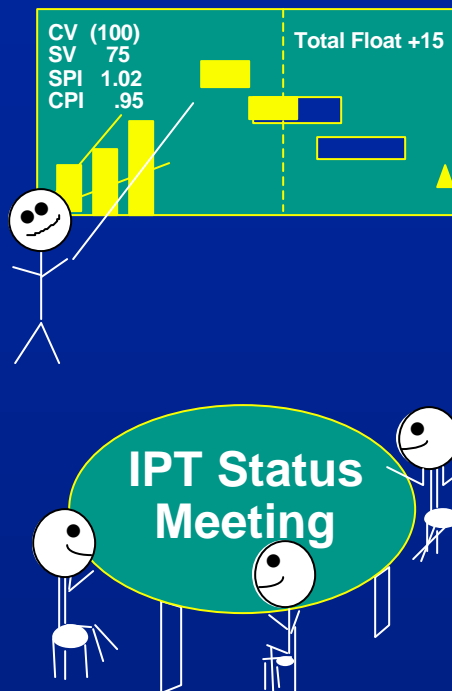
I've got to get these variance analysis reports written

"Beans R Us"

Capitalize on internal program management process

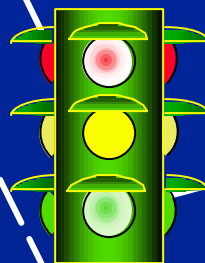# *The Value of Judgment*

LMMS

Substitute Analysis For Arbitrary Rules

"All Traffic Must Stop"

OR
"Yield"
Focus on the Message
Driver's
Intent

LMMS Actions

➡ **EAC triggers**
  SPI
  CPI
  TCPI
  Risk

➡ **Replace thresholds with significant indicators**
  – Risk Areas
  – PDT Concerns
  – WBS

➡ **Use analysis realtime**
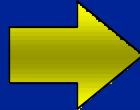
Develop a Quality Assurance Program

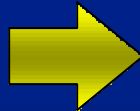## "Contractor Ownership Includes Methods to Evaluate and Ensure the Quality of the EVM System"

Monitor

- **Product** ➡
  - Data reviewed by senior management
  - CPR data analysis
  - Independent EAC analysis
  - Program reviews

- **Process** ➡
  - Statistical process control approach
  - Use diagnostics and metrics
  - Program take responsibility for generation and response
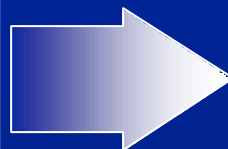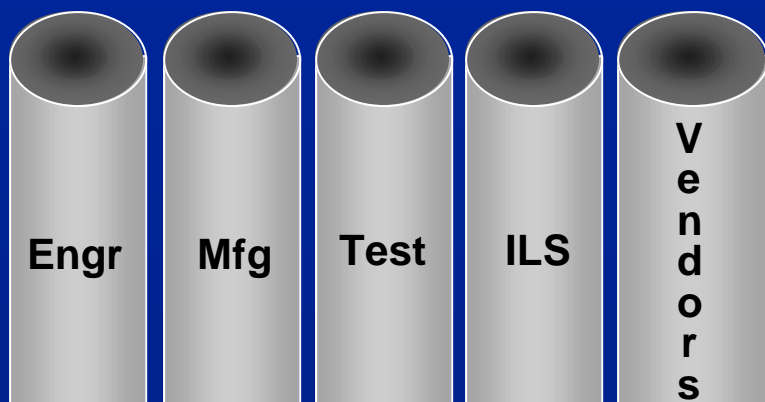
Key Features
- Non-interface
- Look for trends and significant discrepancies
- Replace CAM Interviews with "training" where indicators exist
- Focus includes value of information provided

Teamed for the Future

LMMS

Must Break Down Stovepipes for Common Processes

| Engr | Mfg | Test | ILS | Vendors |

→ **Integrated Product Teams**

- **Adopted Throughout LMMS**
- **Corporate Handbook**

| Air Force | Army | Navy | NASA | Com-mercial |
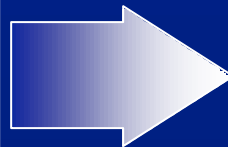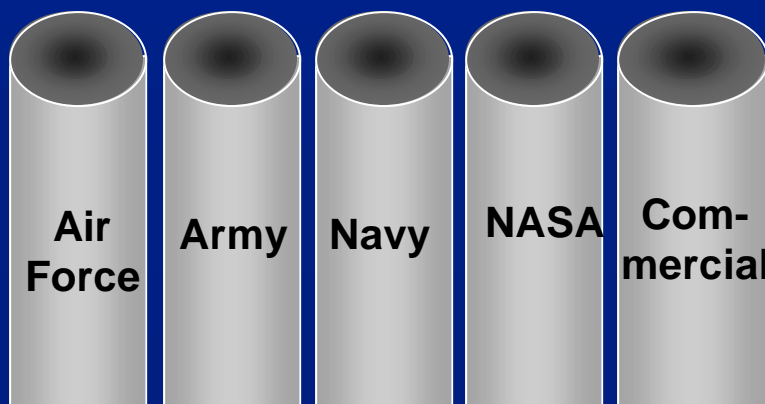
→ **Single Processes**

- **Working w/ Gov't & Industry**
- **DCMC Key**

Combine Surveillance Needs

LMMS

DCMC Hdqtrs

Service Focal Pt.

Customer's Customer

DCMC District

DCMC Local

Customer PO

Internal Compliance

DCAA

Program A

CORLAC

Teaming Approach to Ongoing Surveillance

Joint Surveillance Team

Customer PO

DCAA

DCMC Local

Internal Compliance
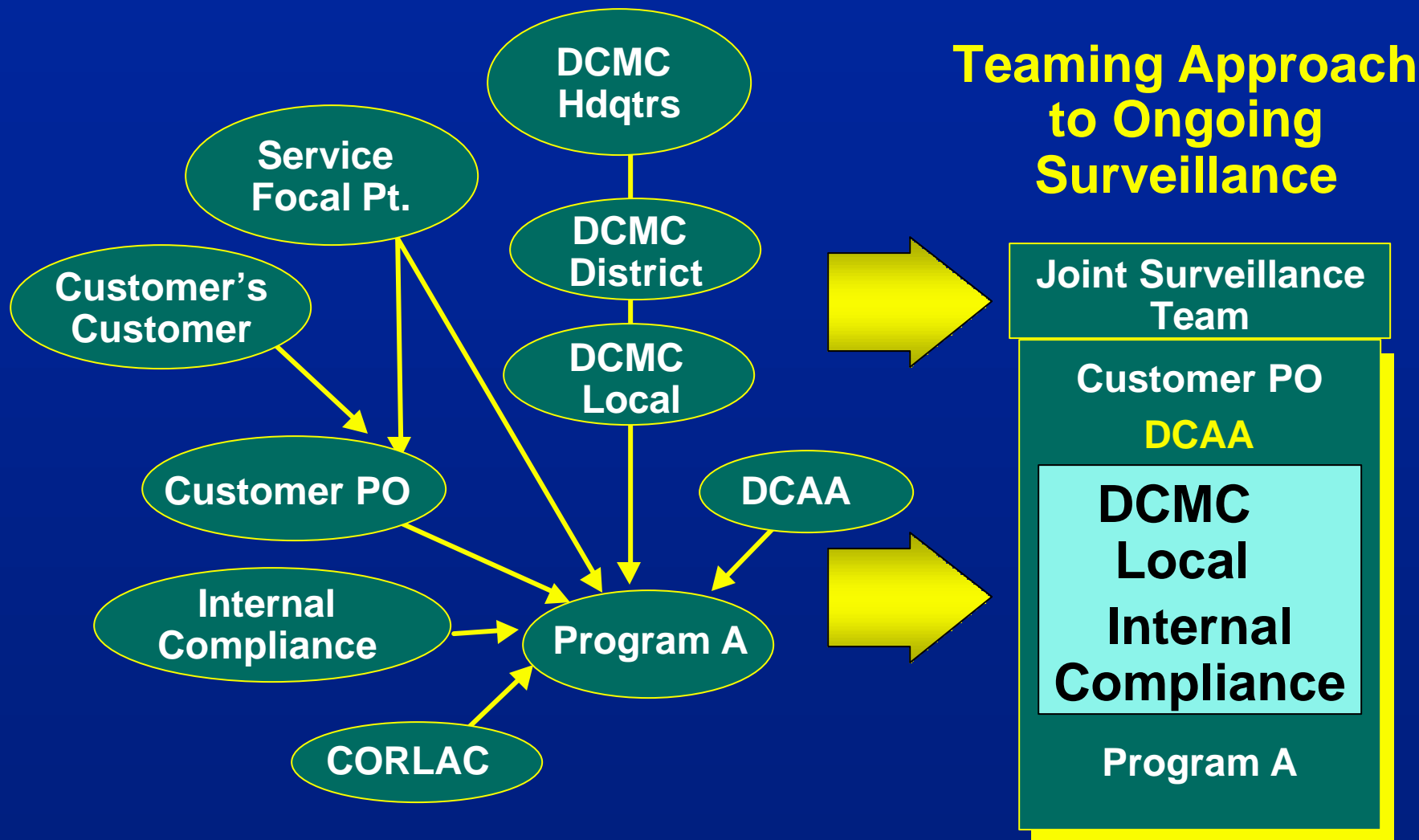
Program A

Benefits to the Government

- **Public funds are at risk on large cost based contracts – a joint Program Office, DCMC, & LMMS process will exist to <u>manage</u> resources wisely**

- **Atmosphere created that <u>capitalizes strengths of participants</u> in surveillance process to develop programs with opportunity of success**

- **Environment fosters active and constructive participation of DCMC, DCAA, and Program Offices with LMMS to develop a <u>sound earned value management strategy</u>**

> *Potentially adversarial relationships transformed into productive partnership – renewed emphasis placed on importance of <u>cross-functional teaming</u>*

Contractor Benefits

- The <u>integration</u> of system surveillance, data surveillance and program surveillance

- Focus on <u>quality</u> and utility of reports

- Tailor processes to the way the contractor <u>naturally manages</u>

- Focus on <u>prevention</u> of management system deficiencies rather than "find and fix"

- Conduct government reviews only when surveillance and reporting indicate system integration and discipline deficiencies are <u>distorting the presentation of program status</u>

Joint Benefits

- **Early teaming yielded end-game success**
- **Developed mutual respect for government/contractor perspectives**
- **Both parties feel positive about eliminating non-value added activitiy**
- **Mutually able to attack real issues – avoided "Committee Fluff"**

> *Gain of Company ownership is a win-win for government and contractor*